ABSTRACT

The present invention provides a system and apparatus for efficient and reliable, control and distribution of data files in large-scale distributed networks. The members of a group of servers in a multicast network elect a group leader whenever a new group leader is required, as when the prior group leader become unavailable, as detected by absence of a periodic heartbeat message published by the leader. The election is carried out by a system of voting by each candidate whereby each candidate has a priority calculated from its configuration, and the server with the highest priority is configured to claim the leadership faster than the other candidates. As part of the claim, each candidate multicasts its priority. Each candidate that receives a multicast claim for leadership from another candidate compares its own priority against the claimant and only votes for itself if its own priority is higher. After a preconfigured period of hearing no other claimants with higher priority, the candidate with the highest priority becomes the new leader.